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ABSTRACT

A compelling body of research shows that when students are part of smaller and more intimate learning communities, they are more successful. The latest research demonstrates that small schools, particularly schools of choice, have a measurably positive impact on inner-city students, especially those from minority and low-income families. The tradeoff for the wider selection of courses offered in large schools has been the sacrifice of coherence, intimacy, security, student choice, and teacher autonomy that a small school can offer. In small schools, the level of participation in all activities tends to be higher, and fewer students are marginalized. Research also suggests that restructuring schools can work and that reorganizing schools into smaller units has important benefits for minority and disadvantaged students. Dropout rates appear to decrease as schools get smaller, and the sense of community is enhanced. The experiences of those who have attempted to create smaller schools in the Chicago, Illinois public school system indicate that successful implementation ultimately depends on the adequate accommodation of old and new school structures and on transformation rather than the simple addition of innovative practices. A list of recommended readings is provided to supplement information. (Contains 40 references.) (SLD)

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The Numbers Tell a Story

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About the Small Schools Workshop

The Small Schools Workshop is a group of organizers, teachers, and action researchers, based at the University of Illinois at Chicago, working in collaboration with teachers, principals and parents in the Chicago Public Schools, to facilitate the creation of new, small, innovative elementary and secondary schools.

The guiding features of small schools are:

- Maximum population of 250-300 students, in a heterogeneous mix that represents the local school community.
- A cohesive self-selected faculty led by a teacher-director.
- A high degree of autonomy around all issues involving curriculum, instruction, and assessment.
- A non-exclusive admissions policy at a continuous educational experience for students (e.g., K-6, K-8, 6-8, 9-12).

Small Schools:

The Numbers Tell a Story

The publication of *The Numbers Tell a Story* was made possible by a generous grant from the John D. and Catherine T. MacArthur Foundation. Additional support for the Small Schools Workshop comes from the Joyce Foundation, as well as the McDougal, New Prospects, Relations, and Weiboldt foundations, and the Woods Fund of Chicago.

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Small Schools: The Numbers Tell a Story

There is now a compelling body of research on a wide range of measures showing that when students are part of smaller, more intimate learning communities, they are more successful. The latest research demonstrates that small schools, particularly schools of choice, have a measurably positive impact on inner-city kids, especially African-American and Latino students and youngsters from low-income families. This data is striking; attending to it is urgent. It finds that:

- Small school size encourages teachers to innovate and "take ownership" of the curriculum;
- Small school size improves students' outcomes on grades and test scores;
- Small school size greatly improves attendance rates and lowers drop-out rates;
- Females and nonwhite students in particular do better in smaller schools;
- Special-needs students, including so-called "at-risk," "exceptional," "disadvantaged," and "gifted" are better served by smaller school units; and
- Security improves and violence decreases as does student alcohol and drug abuse in the small-school environment.

Nearly all recent studies suggest that smaller schools work better, while large school size is found to hurt attendance and dampen enthusiasm for involvement in school activities, leading to higher drop-out rates, vandalism and violence (Oxley, 1994). Current studies also show a correlation between small school size and school effectiveness and community and school identity, while large schools are generally found to correlate with inefficiency, institutional bureaucracy, and personal loneliness.

School Size and Student Achievement

Many studies have examined the influence of school size on student achievement. The seminal works on the opposing sides of the issue were written by James Conant (1967), a big school proponent, and Roger Barker and Paul Gump (1964), who advocated smaller schools. Conant's study, funded by the Carnegie Foundation and the National Association of Secondary School Principals, examined questionnaires from 2,024 high schools with enrollments between 750 and 1,999 students. Despite the lack of smaller schools for comparison, Conant, the former president of Harvard, concluded that "comprehensive" high schools could offer a wider program of foreign languages and advanced placement courses (for college credit) at lower cost.

Barker and Gump closely observed five schools in Kansas, ranging from 83 to 2,287 students. Differing with Conant, they concluded that students in the smaller schools excelled at all social and psychological attributes observed. Although public school policy makers generally followed Conant, subsequent research supported Barker and Gump, showing that, other things being equal, students generally learn more in small schools (Fowler, 1992).

Large high schools may have some advantages. They may, for example, offer a greater variety of courses and activities as well as more resources—although that is by no means guaranteed (Monk, 1987; Bryk, et al., 1994). The differences in diversity or depth of subject offerings in large and small high schools are not great. Rather, large schools generally offer more basic courses in what some have called "a shopping mall curriculum." Robert Zais (1976) describes the modern high school where: "...minicourses proliferate at a breathtaking rate 'to meet the specific individual needs and interests of students.' The result is a kind of disjointed clutter of specialized subjects which often operates to impede, rather than to foster education (p. 396)."

The trade-off for wider course fare has been a sacrifice of coherence, intimacy, security, student choice, and teacher autonomy—factors that are vital to successful learning in today's urban environment. Small schools are able to offer a curriculum that compares favorably with that of a large school, while maintaining communality. When

large schools make available unique course offerings, they usually are taken by only a minority of students, leaving researchers perplexed as to "why the state should have an overriding interest in consolidating schools so that a few students are able to study calculus, physics, and a fourth year of German—to say nothing of rock poetry..." (Haller, et al. 1990). The point here is not that studying "rock poetry" is bad, but rather that big schools, more often than not, invite participation from only a few in their most interesting and unique courses or extracurricular activities. For example, a large school may have a better varsity basketball team, with more students from which to draw talent. But a small school would likely have a higher percentage of students *participating* in athletics as opposed to simply observing. In smaller school settings the level of participation in all activities tends to be higher, and fewer students are marginalized. This was found to be particularly true for female (Lindsay, 1982) as well as African-American and Latino students.

Restructuring Works!

A recent study by Lee and Smith (1994), based on a new large national data set (the National Education Longitudinal Study, or NELS) of more than 11,000 students enrolled in 820 high schools nationwide, shows clear links between school restructuring and improved student learning. Small "communal" schools were found to increase teacher collaboration and team teaching while giving teachers more input into decisions affecting their work. Rather than tracking students, they tended to group students of diverse talents and interests together for instruction. The study found that large-school emphasis on specialization increases the number of possibly conflicting goals held by different people. "Large size and fragmented human contact complicate the management of such schools, which elevates the importance of formal rules to regulate behavior," says the study. "The environment in comprehensive high schools is therefore less human" (p.2).

While the study was limited to gains made in the first two years of high school and made its analysis using only standardized test

results', it did find significantly higher outcomes for students in restructured schools than for those in traditional (large) schools. Furthermore, these gains were distributed more equitably among students from different socioeconomic backgrounds (p. 5). Students who attended small high schools "consistently posted higher gains" in math, reading, history, and science. These gains in smaller schools were above and beyond those arising from other types of restructuring.

A longitudinal study of graduates from East Harlem's Central Park East (CPE) Elementary School (Bensman, 1994), which was on the cusp of the small-schools movement when it began in 1974, puts a human face on the statistics. This study demonstrates that CPE graduates achieved high rates of school progress compared with public school students of comparable socioeconomic backgrounds. But even more important (to Bensman and to most of the students he interviewed), they also were highly successful "in life" as well-rounded participants in society.

A Rand Corporation study on New York City schools cites two characteristics that led to the success of what they call "focus schools." Focus schools are distinguished by a "clear, uncomplicated mission" and are strong autonomous organizations "with the capacity to act" (Hill, et al., 1990). It is this focus and decisiveness that is gained in exchange for a breadth of course offerings in the large high school. Experience shows that it is possible to offer at the 400-pupil level a curriculum that compares quite favorably in terms of breadth and depth with curricula offered in much larger settings. As noted Brown University educator Ted Sizer puts it: "Less is more.... Thoroughness counts more than coverage" (1985, p. 223).

Gender and Racial Issues

A recent study by the American Legislative Exchange Council (A.L.E.C.) (Report Card on American Education, 1994) indicates that higher outcomes on standardized tests like the S.A.T. and A.C.T. as well as higher graduation rates may be connected more with school size than with race. Moreover, minority children in small schools out-

perform their counterparts in areas where large schools predominate. The higher S.A.T. scores registered in Midwestern and Western rural schools have often been attributed to racial homogeneity in places like Iowa. But the A.L.E.C. study challenges those assumptions as "inaccurate" and "racist." It found instead that rural schools do better because they are smaller. The study also found that school size, not classroom size, was the key in the performance of students. Children do better in places small enough that "the principal knows the name of each student" (p. 4). Schools with fewer than 300 students showed the best performance even though class size in many of these schools was higher than the national average.

Studies in Philadelphia found that while socioeconomic background was a major determinant of success, the next most important determinant was *school size*, particularly for African-American students (Summers & Wolfe, 1975). Philadelphia's charter high schools (schools within schools) for example, have had a positive effect on student achievement, especially on promotion and course-passing rates and attendance (Bradley, 1994).

Robert Crain's (1986) study of high schools concludes that: "size is of critical importance in black schools, so much so that reducing high school size should be the highest priority in cities serving large black populations" (pp. 36–37).

The October 1993 Invitational Conference on Making a Difference for Students at Risk, sponsored by the National Center of Education in Inner Cities in collaboration with the National Research Center on Cultural Diversity and Second Language Learning, led researchers to make the following recommendation regarding special needs students: *Organize public schools into smaller units—minischools, charters, or houses—in which groups of students and teachers remain together for several years of study. Schools should employ site-based management; allow extensive choice by students, teachers, and parents—including what school to join; and design major innovations in curriculum and instruction. School staff and categorical program personnel should work collaboratively.*

Smaller schools should free teams of teachers, students, and parents to create innovative programs. They would be ideal settings in

which to implement research findings on student resilience—especially those relating to the benefits of continuing contacts between students and caring adults, and the encouragement of self-efficacy. A major goal: a reduction in the sense of alienation and estrangement from teachers, classmates, and schools that so many youngsters feel... (Wang et al. 1994).

To accomplish these goals, researchers point to the need for teachers to get control of time and scheduling. "At the heart of the new learner-centered school is a fundamental transfer of responsibility for learning from the school to the student," writes Fenwick W. English (1993) of the University of Kentucky. Describing the possible features of this transfer of responsibility, English sees the principalship moving back to its teaching roots for a more "hands-on" posture toward teaching and learning that typifies many small schools.

"As a consequence," writes English, "the principal is not in control of the school. Instead, the school controls itself as a learning place and becomes a collection of 'minischools' or common strands programmed by students based on their needs and the demands of the learning communities" (p. 27).

School Violence

Studies on drop-out rates conclude that they decrease as schools get smaller. There also has been a lessening of other school problems such as drugs, alcoholism, and violence. Based on his study of high-school violence, Jackson Toby (1993) concludes the first step in ending school violence must be to "break through the anonymous, impersonal atmosphere of jumbo high schools and junior highs by creating smaller communities of learning within larger structures, where teachers and students can come to know each other well" (p. 46).

Similar conclusions were drawn by James Garbarino, director of the Family Life Development Center at Cornell University. When asked what he would do about the scourge of violence among juveniles, Garbarino said: "At the adolescent level, if I could do one single thing it would be to ensure that teenagers are not in a high school bigger than 400 to 500 students" (*New York Times*, Dec. 30, 1994)

Community Building

In his qualitative study of four "schools that work," George Wood (1993) found that: "Building institutions is easy, building communities is not." Wood looked at Fratney Street Elementary School in Milwaukee, Hubbard Woods Elementary in Winnetka, Illinois, Thayer Junior/Senior High in Winchester, New Hampshire, and Central Park East Secondary School in New York. In every case he found school size was central to their success in community-building. "The lack of connection with the school, the lack of sense of community," writes Wood, "is often due to the sheer size of the school. When we herd together 2,000 to 3,000 young people in a building, we should be surprised by the existence of community rather than the lack of it" (p. 107).

Researchers Anthony Bryk, Peter Holland, and Valerie Lee have chronicled the effectiveness of Catholic high schools and found them to be better organized than public schools (Bryk et al., 1993). Among the main reasons—smaller size. The average Catholic high school enrolls 546 students; the average public school has 845 students (p. 75). The latter figure would be much higher if we focussed on the comprehensive high schools and is lowered by the inclusion of smaller rural high schools. Over 85 percent of Catholic secondary schools enroll fewer than 900 students. Among public schools, 40 percent have enrollments greater than 900. While smaller size may mean reducing the scope of more specialized course offerings and instructional facilities like science laboratories and resource centers, the trade-off, according to Bryk, is: (1) a greater sense of community within the school; (2) better personal interactions among students and faculty; (3) more leadership experience for students; (4) a feeling by students that teachers are more interested in them; (5) students in turn are more interested in their schoolwork; (6) teachers are more likely to feel satisfied about their work and are then willing to expend greater personal effort.[2] Bryk, a professor at the University of Chicago, says:

> *As we move to decentralize the public school system into a system of publicly supported schools, there is now more space for new schools organized like Catholic schools to emerge.*

Specifically in the context of current efforts to break up large public high schools into smaller "schools within-a-school," there are opportunities now to create more schools that combine strong social engagement with the traditional academic program typically found in Catholic high schools.[1]

Students do better in smaller school settings and this has a lot to do with how small-school teachers teach and how these schools are run. Aside from promoting classroom innovations, small schools increase the scope of teacher responsibilities for many or all classroom needs (Reck, 1990) and may have help from fewer administrators, specialists, and other support staff. While putting a greater load on teachers, this responsibility shift has many positive effects leading to more teacher innovation and lower administrative costs.

Ted Sizer maintains that education of adolescents can *only* be done by teachers who can "move" them. "Furthermore," says Sizer, "to move people one needs to know them. A high school teacher should have direct responsibility for fewer than a hundred students, preferably fewer than eighty" (p. 212).

Smaller schools also can create fertile soil for teaching innovations initiated by teachers themselves. After extensive field research to study innovations over a five-year period in two Vermont High Schools, Robert Larson (1991) found that their small size (400–500 students) set in motion many different types of "inside-out" innovations. These are innovations that come directly out of the teaching experience rather than from top-down decisions or big changes in organization structures.

Costs

Facing severe financial shortfalls, urban school systems have been under pressure to shut down small schools or school buildings that are underutilized, even when these schools have successful programs. The claim often heard is that big schools operate more efficiently because of "economies of scale"; closing down small schools might appeal to legislators as an efficiency measure. Not true, say researchers for the Public Education Association: "The premise that small schools are

more expensive to operate has always been false" (Executive summary). Rather than economies of scale, the researchers found *penalties of scale*. "Difficult to manage efficiently and safely, large schools require a disproportionate increase in management; an extra 'layer' of managers—subject supervisors, assistant principals, deans, additional secretaries—separates principals and teachers" (p. 1).

Based on consultations with experts in construction, urban planning, politics, education, real estate appraisal, and related fields, the PEA report rebuts the presumption that capital costs of school planning and construction render small schools uncommonly expensive. The report points to specific options that can help small schools be created cost effectively.

For example, by using smaller sites for schools there could be *greater flexibility in site acquisitions* as opposed to more difficult to obtain large sites. *Renovation of existing abandoned or underutilized buildings* along small school lines would not require assembling new sites or expensive Environmental Impact Statements (EIS). *Collaboration with other public agencies* to incorporate small schools into multiuse facilities could make better use of costly public investments. Other potential savings can be found through *imaginative organization of school space*.

Herb Walberg (1993) of the University of Illinois at Chicago found a parallel between growth in school size (400 percent since 1940) and per-student spending (500 percent) and concluded: "Education in the United States clearly shows what economists refer to as 'diseconomies of scale,' where increasing size results in an increase in per-unit costs" (p. 4).

Missing in most cost studies is any analysis of other indirect costs or *social costs* of large schools or school districts in terms of communities. Large-school consolidations have robbed many local (especially rural) communities of one of their key resources, while large impersonal learning environments cost more in a nontraditional sense—separating schooling from the community (Nachtigal, 1992) as well as increasing other social problems. Studies also find the "economies of scale" argument to be short sighted because it ignores the indirect costs associated with the academic failures of large

schools. It has been well established that anything that keeps students in school is an excellent long-term investment. The Carnegie Council on Adolescent Development (1988) estimates that each year of secondary education reduces the probability of public welfare dependency in adulthood by 35 percent, and that a single year's class of dropouts, over their lifetimes, costs the nation about $260 billion in lost earnings and foregone taxes alone.

Given the changing character of today's financially strapped, urban school systems, populated largely by nonwhite and nonwealthy students, plus the need for higher achievement, greater security, more diversity, and special needs, the notion that "larger is better" is outmoded and dangerous.

The Chicago Example

Chicago schools are a good case in point, with a nonwhite student population of 90 percent. A study done by the Chicago Board of Education's own staff in 1993 cited the potential benefits of smallness in both elementary and high schools (OIS Report, 1993). The study, which used interviews with local principals, data collected by the Chicago Panel on Public School Policy, and comparative statistics with eight other urban school districts, found that school size had a major effect on many operations of a school program. It found that schools-within-schools and instructional houses offer small-school advantages within large school settings. It recommended that the board make school populations in elementary K–5(6) schools between 300 and 600 students "in order to achieve optimal instructional benefits and cost effectiveness." It also recommended that K–8 schools have 550 to 750 pupils; middle schools, 600 to 800; and high schools, 1300 to 1700 for the same reasons. While such a downsizing might be a step in the right direction, even these recommended sizes are nearly double the optimum size needed for major school improvements.

Researchers from the Consortium on Chicago School Research (1993), reporting on the progress of the first five years of reform in Chicago elementary schools, found school size the most significant characteristic of improving schools. "School reform and improvement

activities are more likely to be productive in small schools," they reported. According to the study, small schools (those with fewer than 350 students) are 1.25 times more likely to be pursuing a systematic approach to improvement compared with other schools (p. 19).

In smaller schools the Consortium found that, "it is easier to maintain personal interaction and informal exchange between participants" and that adversarial politics are less likely to be found: "These results imply that small school size minimizes the likelihood of sustained conflict and can facilitate the emergence of strong democracy" (p. 12).

Another survey of elementary school teachers in Chicago found that communications between teachers and administrators were better in small schools. It found, for example, that "reports from small schools are consistently better than reports from medium and large schools" relative to a list of quality indicators tied to the city's school reform legislation (Consortium, 1992).

The idea of small schools has become a trendy one in some quarters, with some schools calling their programs "houses" or "schools-within-schools." However, some are simply more sophisticated tracking programs, sorting out the "smart kids" or the college-bound from the rest. Others are limited to separate specialized programs rather than actual schools with their own integrated staff and autonomous or semi-autonomous programs or curricula.

According to Temple University researcher Diana Oxley (1989), the issue is not whether small-unit organization is effective but *how to implement it fully and faithfully:*

The experience of school staff who have attempted to organize their schools into small units indicates that successful implementation ultimately turns on the adequate accommodation of old and new school structures. Reorganization does not simply occur by addition of innovative practices but by transformation of traditional school structures and practices into new ones. This order of change is difficult and, in the end, may elude even the most motivated staff (p. 6).

While today's urban schools and school districts are, for the most part, huge, impersonal institutions, they have not always been that way. It was once common for students to be in a school with a population of 300 or less. But over the past three decades, as economic

demands for workers with higher-level skills increased, along with the perceived need to compete with other industrialized powers, educators and politicians responded by diversifying the curriculum and encouraging growth in school size. In Chicago, for instance, less than 40 of Chicago's 470 public elementary schools now have enrollments under 300 students. High schools average 1,520 students, and each year many schools get even larger as a result of closings and consolidations. Nationally in the last 50 years there has been a strong trend toward consolidation of school districts and schools. The total number of elementary and secondary public schools fell 69 percent, from approximately 200,000 in 1940 to 62,037 in 1990. Their average enrollments rose 414 percent, from 127 to 653 students (Walberg, 1993).

The losers have been the students and teachers. Curriculum has become increasingly bureaucratized and centralized, with teachers being pushed into the role of delivery clerks with little say in its development. The results have been tragic, for narrowing the roles of teachers and constricting their sense of professional judgement and responsibility has meant that the only people who can really improve teaching—teachers—are often left powerless. The current research showing the benefits of small school environments offers hope and an array of possibilities for transforming this situation.

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End Notes

1 The Lee & Smith study drew praise from reformer Marilyn Hohmann of the Center for Leadership and School Reform in Louisville, Ky., as "possibly the strongest scholarly support for school restructuring yet published." But like many of the studies reviewed here, there must be some caveats attached. For example, the NELS test battery consists almost exclusively of standardized multiple-choice items. They are not performance-based assessments and tell us very little about students' exposure to authentic classroom instruction, higher-order thinking skills, etc. The study also doesn't tell us whether or not the gains made by students are the result of new restructuring efforts or ones that were in place for years. Furthermore, while the study's results may be impressive in comparing restructured schools with traditional schools, they don't indicate how well students have done in relation to a clear standard of what students know and can do.

2 The positive effect of small size on teacher satisfaction is also reported in Lee, Dedrick, and Smith (1991). The effect on teachers is likely to foster such positive attitudes in students.

3 Commentary in Nov. 16, 1993 issue of *Chicago Tribune*.

UIC The University of Illinois at Chicago

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